AF 02

In The United States Patent and Trademark Office

Application Number: 10/532,079

Application Filed on 4/21/2005 April 11, 2007

Applicant: Jacek Marczyk

Title: A Process for the Creation of Fuzzy Cognitive Maps from Monte Carlo Simulation Generated Meta Model

Art Unit: 2129

Examiner: Wilbert Starks, Jr.

Petition to: Group 2100 Technology Center Director (See MPEP 1002.02(c))

PETITION

Given that said Final Office Action with this application was premature, Applicant hereby Petitions this Director to require Examiner to withdraw his Final Office Action dated March 7, 2007, pursuant to MPEP 706.07 and 37 CFR 1.181.

Background of the Petition

1. On June 27, 2006, Wilbert Starks, Jr. (hereinafter "Examiner") issued his first office action, on the above application.

2. After briefly reviewing this first office action, Applicant concluded that Examiner had written his first office action, without reviewing the two books incorporated by reference in both its provisional and formal applications.

3. In late August, Applicant contacted Examiner, by phone, to clarify why it appeared that those two books, which were incorporated by reference, were not considered when the first office action was written.

4. Examiner acknowledged that he had not considered the two books that were incorporated by reference when he prepared his office action; Examiner then agreed that he would look at the references and "get back to [Applicant]." To expedite his review of the two books, which were incorporated by reference, Applicant acquired and forwarded a PDF copy of one of the books to Examiner (see Exhibit A).

5. Contrary to what was agreed, Applicant did not receive any communications from Examiner relating to the patentability of the invention, when the two references were considered, until the interview of January 4, 2007 – 129 days after the issue was raised and even then, Examiner's comments were not definitive.

6. On September 19, 2006, while reviewing Examiner's first office action, it was discovered that there appeared to be material missing from the first office action. Because there was missing material in the first office action, Examiner was contacted in an effort to get a complete first office action.

7. Applicant made repeated attempts to contact Examiner (see Exhibits B and C), by phone and by E-mail, to get the missing material from Examiner's office action. Examiner supplied the missing material to Applicant by fax at 5:51 PM on 9/27/2006: eight days after Applicant requested the missing material and a few hours before the filing deadline for responding to Examiner's Office Action.

8. Having not received a response from Examiner, addressing the incomplete review of the application for the first office action, beginning on September 05, 2006, and for the next few months, Applicant attempted, to communicate with Examiner by phone and by E-mail (see Exhibit D) in an attempt to resolve the matters relating to Examiner's incomplete review of the Application.

9. During this interval when applicant attempted to communicate with Examiner and approximately three months after Applicant had brought the reference problem to the attention of Examiner, Applicant was forced to file a response to the first Office Action on 11/27/2006 -- without the promised response from Examiner; Applicant's filing of its response on 11/27/2007 was necessary to avoid the high cost of filing a response with a three month extension.

10. On January 4, 2007, 129 days after the initial problems with the first office actions were raised with the Examiner, Applicant was granted an interview. During that interview, Examiner indicated that he would discuss the matter with his supervisor (including the possibility that the application was assigned to the wrong Art Unit) and "get back to [Applicant]" and the Examiner and Applicant agreed that a revised set of claims would be submitted, by Applicant, which met the requirements stated by the Examiner, during the interview. It was also agreed that there was no prior art that would be the basis of a 35 USC 102 or 35 USC 103 rejection.

11. Pursuant to what was agreed to during the interview and without the benefit of the promised comments from the Examiner's supervisor, Applicant submitted a revised set of claims, as was agreed to during the interview, to eliminate the objections of Examiner (see Exhibits E and G); these claims were forwarded to Examiner.

12. On January 30 Applicant, in response to submitting its amended claims received the following response from Examiner (see Exhibit F):

> Thank you. I will have to look at the claims for a bit.
> Some look statutory; some look as if they should go to the business units.
> I will have to take a closer look.

13. There were no further communications from Examiner and the two messages left on Examiner's voicemail by Applicant were never responded to, by Examiner.

14. On March 12, 2007, Applicant received a Final Office Action dated March 7, which was directed to Applicant's November 27, 2006 response to Examiner's first office action. In this Final Office Action, there was no discussion of the claims that were submitted pursuant to the January 4, 2007 interview.

The Decision Below

Examiner issued a final office action on March 7, 2007, despite the existence of a number of pending issues that Examiner had agreed to address first.

After receiving the final office action, Applicant contacted Examiner's SPE. After a few minutes of discussion, the SPE indicated that he was supporting Examiner and he would not withdraw the Final Office Action because Examiner "has a lot of work to do" and "[Applicant's] actions are an attempt to get a free review of the claims" (the SPE was referring to the examination of the claims arising from the interview).

Shortly after the phone conversation with Examiner's SPE, Applicant was contacted by Examiner. The Examiner indicated that he would not withdraw his Final Office Action and Applicant should amend his application pursuant to 37 CFR 1.116. Examiner's reasoning for issuing the Final Office Actions was the same as his SPE, but he also included the arguments that he had "run out of time" and that there needed to be what he referred to as "Judicial Efficiency": a phrase that is at times associated with appellate courts that decline to review overtly defective proceedings from the lower court because of the appellate court's limited resources.

Discussion of the Applicable Law

When Examiner issued his final office action on March 7, 2007, there were a number of issues that Examiner had agreed to address, but he had not yet addressed:

• There was and still is the issue, raised by Examiner, of some of the claims being incorrectly assigned to Art unit 2129; this issue was raised by Examiner during the January 4, 2007 interview and in Examiner's January 30, 2007 E-mail to Applicant.

• There was and still is the issue of the proposed claims that were sent to Examiner on January 30, 2007; claims that the Examiner agreed to review, but had either failed to review or had failed to notify Applicant of the results of his review.

• There was and still is the issue of which of the claims submitted on January 30, 2007, would be allowable. Given that Examiner had indicated, in his January 30, 2007 communication to Applicant, that (referring to the claims) "Some [claims] look statutory"[1]. Given that there was no prior art, Examiner, in his January 30, 2007 communication, is stating that some of the claims "look allowable," yet because Examiner did not respond, as he agreed to, Applicant does not have any idea which of the claims are allowable, especially because Examiner, in his Final Office Action, only addressed those claims that were submitted on November 27, 2006 – prior to any interview and prior to the resolution of the issues arising from Examiner's incomplete review of the application during his preparation of his first office action.

With pending actions by the Examiner unfulfilled and their accompanying issues still unresolved, the issuance of a final Office action was premature; moreover, because there are unresolved issues, Examiner's suggested use of 37 CFR 1.116 is unworkable.

[1] Applicant is referring to the revised claims submitted on January 30 pursuant to the January 4, 2007 interview recommendations of Examiner (see Exhibit F).

There were a number of reasons cited as justification for the issuance of the final office action, even when there were pending actions:

Both the Examiner and his SPE referred to the review of the claims pursuant to an interview as "an attempt to get a free review of the claims." This position is contrary to MPEP § 713 and 37 CFR 1.133 – both of which permit interviews. Since most, if not all interviews involve the review of claims and specifications, both the SPE and Examiner are implying that an interview, where specifications and claims are reviewed, are improper; if this is the present position of the United States Patent and Trademark Office, it is not reflected in the Federal Rules (37 CFR) and in the MPEP.

As for the issue of "Judicial Efficiency," Applicant asserts that, as a policy, it is a bad idea to cut corners, where such actions would prejudice the Applicant and undermine fundamental precepts of patent prosecution, even when there are deadline related issues.

Finally, if the Patent and Trademark Office is driven by efficiency considerations, if some of the revised claims submitted to the Examiner on January 30 were allowable, would it not be more efficient for the Examiner to identify the allowable claims, to permit the entrance of the allowable claims, and allow the revised application to be issued, rather than having the Examiner take the time to prepare and issue a final office action; given the facts, efficiency had little to do with the Examiner's issuance of the final office action.

Remedy

Given the above facts and arguments, the United States Patent and Trademark Office should withdraw Examiner's final office action, it should require the determination if the claims are being prosecuted in the proper art unit, it should require the assigned examiner to identify those claims in Applicant's January 30, 2007 submittal (see Exhibit G) that are allowable, and, given the prejudicial delays and procedural omissions in responding to Applicant on various occasions, it would be proper to assign another primary examiner to review this application, and, given that we do not know to what extent Examiner's SPE contributed to Examiner's inaction, Applicant believes that another SPE, should be assigned to oversee the prosecution of this Application.

For the foregoing reasons, it is submitted that the Examiner's final office action was premature and reversal of the Examiner's decision to issue his Final Office Action is, respectfully requested.

Respectfully submitted,

Gary Pisner, Esq
Reg. No. 34096

Pisner & Pisner, Attorneys
12111 Fairfax Hunt Road
Fairfax, Virginia 22030
Tel: 703-322-1432
Fax 703-842-5340
E-mail: gpisner@aptcs.com

EXHIBIT A

From: Gary Pisner [mailto:gpisner@aptcs.com]
Sent: Tuesday, September 05, 2006 10:37 AM
To: 'Wilbert.Starks@uspto.gov'
Subject: At you request, I have attached the reference for Application 10/532079

Dear Sir:

Pursuant to our telephone discussion last week, I have attached an Adobe Acrobat copy of one of the books that was included by reference in application 10/532,079 of Jacek Marczyk.

Regards,
Gary Pisner, Esq.
Patent Bar Id 34096

From: Starks, Wilbert [mailto:Wilbert.Starks@USPTO.GOV]
Sent: Tuesday, September 05, 2006 10:39 AM
To: Gary Pisner
Subject: Read: At you request, I have attached the reference for Application 10/532079

Your message

To: Starks, Wilbert
Subject: At you request, I have attached the reference for Application 10/532079
Sent: Tue, 5 Sep 2006 10:37:08 -0400

was read on Tue, 5 Sep 2006 10:39:30 -0400

EXHIBIT B

From: Gary Pisner [mailto:gpisner@aptcs.com]
Sent: Tuesday, September 19, 2006 1:06 PM
To: 'Wilbert.Starks@uspto.gov'
Subject: At you request, I have attached the reference for Application 10/532079 of Jacek Marczyk

Dear Sir:

I received an E-mail from the attorney on our office, who is doing some of the preliminary work on the response to your office action for Application 10/532079. He has indicated to me that there appears to be "some missing material in the [your] office action." I can only assume that there is a page missing or some lines of text cut-off. If it would not be putting you out, could you please e-mail a copy of the pending office action for Application 10/532079 to me. I believe that our response is due next Tuesday.

Thanks,
Gary Pisner, Esq.
Patent Bar Id 34096

From: Gary Pisner [mailto:gpisner@aptcs.com]
Sent: Tuesday, September 26, 2006 7:45 AM
To: 'Wilbert.Starks@uspto.gov'
Subject: Request Application 10/532079 of Jacek Marczyk 2nd request

Dear Sir:

I received an E-mail from the attorney on our office, who is doing some of the preliminary work on the response to your office action for Application 10/532079. He has indicated to me that there appears to be "some missing material in the [your] office action." I can only assume that there is a page missing or some lines of text cut-off. If it would not be putting you out, could you please e-mail a copy of the pending office action for Application 10/532079 to me. I believe that our response is due next Tuesday.

Thanks,
Gary Pisner, Esq.
Patent Bar Id 34096

EXHIBIT C

From: Starks, Wilbert [mailto:Wilbert.Starks@USPTO.GOV]
Sent: Tuesday, September 26, 2006 3:06 PM
To: gpisner@aptcs.com
Subject: RE: Request Application 10/532079 of Jacek Marczyk 2nd request

Examiners are not permitted to send file materials via e-mail.

Is the gap in a portion containing a 101 rejection?

If so, there is no material missing...there is a hard return placed in a MSWord file that I couldnt get rid of.

-----Original Message-----
From: Gary Pisner [mailto:gpisner@aptcs.com]
Sent: Tuesday, September 26, 2006 7:45 AM
To: Starks, Wilbert
Subject: Request Application 10/532079 of Jacek Marczyk 2nd request

Dear Sir:

I received an E-mail from the attorney on our office, who is doing some of the preliminary work on the response to your office action for Application 10/532079. He has indicated to me that there appears to be "some missing material in the [your] office action." I can only assume that there is a page missing or some lines of text cut-off. If it would not be putting you out, could you please e-mail a copy of the pending office action for Application 10/532079 to me. I believe that our response is due next Tuesday.

Thanks,
Gary Pisner, Esq.
Patent Bar Id 34096

From: Gary Pisner [mailto:gpisner@aptcs.com]
Sent: Tuesday, September 26, 2006 4:43 PM
To: 'Starks, Wilbert'
Subject: RE: Request Application 10/532079 of Jacek Marczyk 2nd request

Thank you for responding.
The PTO's policy regarding E-mail is logical, but the problem appears to more extensive then a hard return.

Could we have someone pickup a copy or make a copy at the PTO tomorrow, or could someone fax a copy to 703-842-5340?
I believe that tomorrow is the response date.

Thanks you for your assistance.
Pisner & Pisner, Attorneys

From: Starks, Wilbert [mailto:Wilbert.Starks@USPTO.GOV]
Sent: Tuesday, September 26, 2006 3:06 PM
To: gpisner@aptcs.com
Subject: RE: Request Application 10/532079 of Jacek Marczyk 2nd request

Examiners are not permitted to send file materials via e-mail.

Is the gap in a portion containing a 101 rejection?

If so, there is no material missing...there is a hard return placed in a MSWord file that I couldnt get rid of.

-----Original Message-----
From: Gary Pisner [mailto:gpisner@aptcs.com]
Sent: Tuesday, September 26, 2006 7:45 AM
To: Starks, Wilbert
Subject: Request Application 10/532079 of Jacek Marczyk 2nd request

Dear Sir:

I received an E-mail from the attorney on our office, who is doing some of the preliminary work on the response to your office action for Application 10/532079. He has indicated to me that there appears to be "some missing material in the [your] office action." I can only assume that there is a page missing or some lines of text cut-off. If it would not be putting you out, could you please e-mail a copy of the pending office action for Application 10/532079 to me. I believe that our response is due next Tuesday.

Thanks,
Gary Pisner, Esq.
Patent Bar Id 34096

EXHIBIT D

From: Gary Pisner [mailto:gpisner@aptcs.com]
Sent: Thursday, November 09, 2006 2:55 PM
To: 'Starks, Wilbert'
Subject: RE: Request 10/532079 of Jacek Marczyk 2nd request

RE: Second Request for in-person interview for application 10/532079 of Jacek Marczyk.

Dear Mr. Starks:

Could we please have an in-person interview regarding patent application 10/532079, next week?

Thanks,
Gary Pisner, Esq.
Patent Bar Id 34096

From: Gary Pisner [mailto:gpisner@aptcs.com]
Sent: Tuesday, November 21, 2006 9:21 AM
To: 'Wilbert.Starks@uspto.gov'
Subject: Request Application 10/532079 of Jacek Marczyk

Dear Sir:

I am an attorney representing the Applicant Jacek Marczyk for patent application 10/532079. Our response to your office action of 6/27, with a two-month extension is due this Monday. In the last two months, I have left a number of messages with you in an attempt to schedule an in-person interview with you. To this date, you have not responded to my requests. It appears that I am running out of time in my effort to get the needed feedback from you, in-person. I have attached proposed new claims, along with the identification of the basis of the claims in the specification. Could you please review the proposed claims and respond by indicating if these new claims would be acceptable.

Thanks,
Gary Pisner, Esq.
Patent Bar Id 34096

EXHIBIT D

m: Starks, Wilbert [mailto:Wilbert.Starks@USPTO.GOV]
t: Thursday, December 21, 2006 2:08 PM
Gary Pisner
ject: Read: Request Application 10/532079 of Jacek Marczyk

message

Starks, Wilbert
bject: Request Application 10/532079 of Jacek Marczyk
t: Tue, 21 Nov 2006 09:20:50 -0500

read on Thu, 21 Dec 2006 14:08:00 -0500

From: Gary Pisner [mailto:gpisner@aptcs.com]
Sent: Tuesday, December 12, 2006 11:56 AM
To: 'Wilbert.Starks@uspto.gov'
Subject: Request Application 10/532079 of Jacek Marczyk

Dear Sir:

We made repeated requests for a meeting to review proposed revised claims, prior to filing our response to your office action; you did not respond to our requests. Given the extra cost of a three-month extension, we were forced to file a response without the requested interview. Soon you will have to respond to our response to your office action. It is my opinion that, under these circumstances, issuing a final office action prior to having the interview, which we properly requested, would not serve the Applicant's and it would not serve your interest. As for the reason why we did not get any response from our E-mails and our calls to you, I do not believe that we need to delve into this matter as long as there is no detriment to the Applicant's interests, resulting from this lack of a timely interview.

The solution to this situation is simple; we need to have an interview before you issue any final office action (if you do not permit the application to issue). Please contact me soon.

Regards,
Gary Pisner, Esq.
Bar Id 34096

Dear Sir:

I am an attorney representing the Applicant Jacek Marczyk for patent application 10/532079. Our response to your office action of 6/27, with a two-month extension is due this Monday. In the last two months, I have left a number of messages with you in an attempt to schedule an in-person interview with you. To this date, you have not responded to my requests. It appears that I am running out of time in my effort to get the needed feedback from you, in-person. I have attached proposed new claims, along with the identification of the basis of the claims in the specification. Could you please review the proposed claims and respond by indicating if these new claims would be acceptable.

Thanks,
Gary Pisner, Esq.
Patent Bar Id 34096

EXHIBHT D

From: Starks, Wilbert [mailto:Wilbert.Starks@USPTO.GOV]
Sent: Thursday, December 21, 2006 2:04 PM
To: Gary Pisner
Subject: Read: Request Application 10/532079 of Jacek Marczyk

Your message

To: Starks, Wilbert
Subject: Request Application 10/532079 of Jacek Marczyk
Sent: Tue, 12 Dec 2006 11:55:48 -0500

was read on Thu, 21 Dec 2006 14:03:38 -0500

EXHIBIT E

From: Gary Pisner [mailto:gpisner@aptcs.com]
Sent: Tuesday, January 30, 2007 8:51 AM
To: 'Starks, Wilbert'
Subject: RE: Request 10/532079 of Jacek Marczyk proposed claims

RE: Second Request for in-person interview for application 10/532079 of Jacek Marczyk.

Dear Mr. Starks:

Pursuant to our January in person interview, I have attached proposed claims that, given your comments, will meet the requirements that you requested during our interview.
Please review the proposed claims and send me an E-mail or give me a call.
If they are acceptable, I will put the attached claims in the form of an amendment.

Thanks,
Gary Pisner, Esq.
Patent Bar Id 34096

From: Starks, Wilbert [mailto:Wilbert.Starks@USPTO.GOV]
Sent: Tuesday, January 30, 2007 3:32 PM
To: Gary Pisner
Subject: Read: RE: Request 10/532079 of Jacek Marczyk proposed claims

Your message

To: Starks, Wilbert
Subject: RE: Request 10/532079 of Jacek Marczyk proposed claims
Sent: Tue, 30 Jan 2007 08:50:48 -0500

was read on Tue, 30 Jan 2007 15:32:22 -0500

EXHIBIT F

From: Starks, Wilbert [mailto:Wilbert.Starks@USPTO.GOV]
Sent: Tuesday, January 30, 2007 3:28 PM
To: gpisner@aptcs.com
Subject: RE: Request 10/532079 of Jacek Marczyk proposed claims

Thank you. I will have to look at the claims for a bit.

Some look statutory, some look as if they should go to the business units.

I'll have to take a closer look.

-----Original Message-----
From: Gary Pisner [mailto:gpisner@aptcs.com]
Sent: Tuesday, January 30, 2007 8:50 AM
To: Starks, Wilbert
Subject: RE: Request 10/532079 of Jacek Marczyk proposed claims

RE: Second Request for in-person interview for application 10/532079 of Jacek Marczyk.

Dear Mr. Starks:

Pursuant to our January in person interview, I have attached proposed claims that, given your comments, will meet the requirements that you requested during our interview.
Please review the proposed claims and send me an E-mail or give me a call.
If they are acceptable, I will put the attached claims in the form of an amendment.

Thanks,
Gary Pisner, Esq.
Patent Bar Id 34096

7. (NEW) A process for creating optimized elements of a device, comprising:

(a) selecting an equation or set equations that models the behavior of the elements of a device;

(b) selecting a range for each input variable in said equation or set of equations;

(c) selecting the number of trials;

(d) selecting the logical distribution function of each of the said input variables;

(e) selecting at least two fuzzy level boundaries for each of the said phenomenon;

(f) generating values for all of said input variables of all of said trials, within said input variable's said range and within said logical distribution, using Monte Carlo simulations;

(g) solving said equation or equations to produce outputs to produce a Meta Model;

(h) increasing or decreasing the generated values of one of said input variables by fixed increments for each of said trials;

(i) solving said equation or equations using the incremented or decremented values of one of said input values;

(j) identifying the fuzzy level placement within said fuzzy level boundary for each of said outputs generated using said incremented or decremented input values for each of said trials;

(k) calculating the probability of said fuzzy level placement for one of said outputs by dividing the number of said outputs at each of the said fuzzy levels by the number of said trials;

(l) categorizing said fuzzy level placements for said output as indicating a positive or negative correlation;

(m) categorizing the magnitude of said fuzzy level placement when there are more than two of the said fuzzy level boundaries;

(n) repeating the process steps h through m for each of the remaining input variables;
(o) mapping said correlations and said probabilities of the relationships between said input variables and phenomena in the form of a fuzzy cognitive map; and
(p) adjusting the characteristics of said elements of said device, in accordance with said fuzzy cognitive map.

8. A process for creating optimized elements of a device as in claim 7, wherein said device is mechanical.

9. A process for creating optimized elements of a device as in claim 7, wherein said device is electrical.

10. A process for creating optimized elements of a device as in claim 7, wherein said device is optical.

11. A process for creating optimized elements of a device as in claim 7, wherein said device is hydraulic.

12. A process for creating optimized elements of a device as in claim 7, wherein said device is pneumatic.

13. A process for creating optimized elements of a device as in claim 7, wherein said device is magnetic.

14. A process for creating optimized elements of a device as in claim 7, wherein adjusting the characteristics of said elements of said device, in accordance with said fuzzy cognitive map, is done by changing the dimensions of a part of a device.

15. A process for creating optimized elements of a device as in claim 7, wherein adjusting the characteristics of said elements of said device, in accordance with said fuzzy cognitive map, is done by changing the composition of a part of a device.

16. A process for creating optimized elements of a device as in claim 7, wherein adjusting the characteristics of said elements of said device, in accordance with said fuzzy cognitive map, is done by replacing one part with another part.

17. A process for creating optimized elements of a device as in claim 7, wherein adjusting the characteristics of said elements of said device, in accordance with said fuzzy cognitive map, is done by altering the design of a part.

18. A process for creating optimized elements of a device as in claim 17, wherein adjusting the characteristics of said elements of said device, in accordance with said fuzzy cognitive map, is done by altering the design of a part in response to the mechanical dynamics of said part.

19. A process for creating optimized elements of a device as in claim 17, wherein adjusting the characteristics of said elements of said device, in accordance with said fuzzy cognitive map, is done by altering the design of a part in response to the fluid dynamics of said part.

20. A process for creating optimized elements of a device as in claim 17, wherein adjusting the characteristics of said elements of said device, in accordance with said fuzzy cognitive map, is done by altering the design of a part in response to the thermodynamics of said part.

21. A process for creating optimized elements of a device as in claim 17, wherein adjusting the characteristics of said elements of said device, in accordance with said fuzzy cognitive map, is done by altering the design of a part in response to the electromagnetics of said part.

22. (NEW) A process for predicting the behavior of a target population under given conditions, comprising:

(a) selecting an equation or set equations that models the behavior of a population;

(b) selecting a range for each input variable in said equation or set of equations;

(c) selecting the number of trials;

(d) selecting the logical distribution function of each of the said input variables;

(e) selecting at least two fuzzy level boundaries for each of the said phenomenon;

(f) generating values for all of said input variables of all of said trials, within said input variable's said range and within said logical distribution, using Monte Carlo simulations;

(g) solving said equation or equations to produce outputs to produce a Meta Model;

(h) increasing or decreasing the generated values of one of said input variables by fixed increments for each of said trials;

(i) solving said equation or equations using the incremented or decremented values of one of said input values;

(j) identifying the fuzzy level placement within said fuzzy level boundary for each of said outputs generated using said incremented or decremented input values for each of said trials;

(k) calculating the probability of said fuzzy level placement for one of said outputs by dividing the number of said outputs at each of the said fuzzy levels by the number of said trials;
(l) categorizing said fuzzy level placements for said output as indicating a positive or negative correlation;
(m) categorizing the magnitude of said fuzzy level placement when there are more than two of the said fuzzy level boundaries;
(n) repeating the process steps h through m for each of the remaining input variables;
(o) mapping said correlations and said probabilities of the relationships between said input variables and phenomena in the form of a fuzzy cognitive map; and
(p) predicting the behavior of a target population by examining said fuzzy cognitive map.

23. A process for predicting the behavior of a target population under given conditions as in claim 22, wherein said population is human.

24. A process for predicting the behavior of a target population under given conditions as in claim 23, wherein said prediction is the basis of a report that estimates is the basis of an advertisement campaign.

25 A process for predicting the behavior of a target population under given conditions as in claim 22, wherein said prediction is used to create a report that estimates a product's usage pattern.

26. A process for predicting the behavior of a target population under given conditions as in claim 23, wherein said prediction is used to create a report that estimates a product's usage pattern.

27. A process for predicting the behavior of a target population under given conditions as in claim 23, wherein said prediction is used to create a report that estimates a commodity's usage pattern.

28. A process for predicting the behavior of a target population under given conditions as in claim 23, wherein said prediction is used to create a report that estimates a service's usage pattern.

29. A process for predicting the behavior of a target population under given conditions as in claim 22, wherein said population is not human.

30. A process for predicting the behavior of a target population under given conditions as in claim 29, wherein said prediction is used to create a report that estimates the behavior of livestock.

31. A process for predicting the behavior of a target population under given conditions as in claim 29, wherein said prediction is used to create a report that estimates the growth of plants.

32. A process for predicting the behavior of a target population under given conditions as in claim 22, wherein said prediction is used to adjust the data in a computer program to change the computer's output.

33. (NEW) A method for processing electro-magnetic signals, comprising:
(a) selecting an equation or set equations that models the behavior of electromagnetic signal;
(b) selecting a range for each input variable in said equation or set of equations;
(c) selecting the number of trials;
(d) selecting the logical distribution function of each of the said input variables;
(e) selecting at least two fuzzy level boundaries for each of the said phenomenon;

(f) generating values for all of said input variables of all of said trials, within said input variable's said range and within said logical distribution, using Monte Carlo simulations;
(g) solving said equation or equations to produce outputs to produce a Meta Model;
(h) increasing or decreasing the generated values of one of said input variables by fixed increments for each of said trials;
(i) solving said equation or equations using the incremented or decremented values of one of said input values;
(j) identifying the fuzzy level placement within said fuzzy level boundary for each of said outputs generated using said incremented or decremented input values for each of said trials;
(k) calculating the probability of said fuzzy level placement for one of said outputs by dividing the number of said outputs at each of the said fuzzy levels by the number of said trials;
(l) categorizing said fuzzy level placements for said output as indicating a positive or negative correlation;
(m) categorizing the magnitude of said fuzzy level placement when there are more than two of the said fuzzy level boundaries;
(n) repeating the process steps h through m for each of the remaining input variables;
(o) mapping said correlations and said probabilities of the relationships between said input variables and phenomena in the form of a fuzzy cognitive map; and
(p) transforming said electro-magnetic signal based on said fuzzy cognitive map into a useful output signals.

34. (NEW) A process for creating optimized materials, comprising:
(a) selecting an equation or set equations that models the behavior of a material;
(b) selecting a range for each input variable in said equation or set of equations;
(c) selecting the number of trials;
(d) selecting the logical distribution function of each of the said input variables;
(e) selecting at least two fuzzy level boundaries for each of the said phenomenon;
(f) generating values for all of said input variables of all of said trials, within said input variable's said range and within said logical distribution, using Monte Carlo simulations;

(g) solving said equation or equations to produce outputs to produce a Meta Model;
(h) increasing or decreasing the generated values of one of said input variables by fixed increments for each of said trials;
(i) solving said equation or equations using the incremented or decremented values of one of said input values;
(j) identifying the fuzzy level placement within said fuzzy level boundary for each of said outputs generated using said incremented or decremented input values for each of said trials;
(k) calculating the probability of said fuzzy level placement for one of said outputs by dividing the number of said outputs at each of the said fuzzy levels by the number of said trials;
(l) categorizing said fuzzy level placements for said output as indicating a positive or negative correlation;
(m) categorizing the magnitude of said fuzzy level placement when there are more than two of the said fuzzy level boundaries;
(n) repeating the process steps h through m for each of the remaining input variables;
(o) mapping said correlations and said probabilities of the relationships between said input variables and phenomena in the form of a fuzzy cognitive map;
(p) adjusting the chemical and/or the structural characteristics of said material using said fuzzy cognitive map; and
(q) synthesizing said material to produce a product.

35. (NEW) A method for optimizing a process, comprising:
(a) selecting an equation or set equations that models the behavior of a process;
(b) selecting a range for each input variable in said equation or set of equations;
(c) selecting the number of trials;
(d) selecting the logical distribution function of each of the said input variables;
(e) selecting at least two fuzzy level boundaries for each of the said phenomenon;
(f) generating values for all of said input variables of all of said trials, within said input variable's said range and within said logical distribution, using Monte Carlo simulations;
(g) solving said equation or equations to produce outputs to produce a Meta Model;

(h) increasing or decreasing the generated values of one of said input variables by fixed increments for each of said trials;
(i) solving said equation or equations using the incremented or decremented values of one of said input values;
(j) identifying the fuzzy level placement within said fuzzy level boundary for each of said outputs generated using said incremented or decremented input values for each of said trials;
(k) calculating the probability of said fuzzy level placement for one of said outputs by dividing the number of said outputs at each of the said fuzzy levels by the number of said trials;
(l) categorizing said fuzzy level placements for said output as indicating a positive or negative correlation;
(m) categorizing the magnitude of said fuzzy level placement when there are more than two of the said fuzzy level boundaries;
(n) repeating the process steps h through m for each of the remaining input variables;
(o) mapping said correlations and said probabilities of the relationships between said input variables and phenomena in the form of a fuzzy cognitive map; and
(p) adjusting said process, using said fuzzy cognitive map, to optimize said process.

36. The method in claim 35, wherein said process is use for the preparation of plans for the design of a facility that manufactures product.

37. The method in claim 35, wherein said process is used to create a document that serves as a template for the organization of a company.

38. The method in claim 35, wherein said process is a chemical process.

39. The method in claim 35 wherein, said process output is used to adjust the data in a computer program to change the computer's output.